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RANGE IMPROVEMENT

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STATEMENT OF PURPOSE

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This publication is printed primarily to inform professional range administrators of important range improvement and management developments and findings. These "Notes" may include extracts of published papers, unpublished preliminary reports of research work, unpublished reports on administrative studies, and personal observations or suggestions of other range administrators. No claim is made as to the accuracy or completeness of studies or conclusions drawn.

All who read these RANGE IMPROVEMENT NOTES are encouraged to submit material for publication, or suggestions for improving its usefulness. Full credit will be given for any material used.

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RANGE IMPROVEMENT THROUGH GRAZING MANAGEMENT
CANNONBALL UNIT 7, N.D.

By
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This Cannonball report is a case history of two areas, side by side, having the same soil, precipitation, and topography but with different grazing management.

The study was made near Breien, North Dakota, 18 miles west of the Missouri River and just south of the Cannonball River on the Standing Rock Indian Reservation. The two areas studied are a part of the same sandy range site, are the same distance from water, 1/4 of a mile, and differ only in being on different sides of a fence and in the management that has been in effect. The two areas will hereafter be referred to as the "area with management" and the "area without management." The precipitation is assumed to be similar to that of Fort Yates located 21 miles southeast of the study area. The following information is from the Fort Yates weather station, the nearest established station to the study area.

<u>Year</u>	<u>1st 6 months</u>	<u>Annual</u>
1957	8.40	14.52
1958	7.59	13.31
1959	5.44	
'59 year average	8.69	15.35

The area with management has been under grazing permit since 1935. The stocking rate has been 2.5 acres per a.u.m. In 1958 the stocking rate was changed to 2.2 acres per a.u.m. The permit has been on a yearlong basis. Actual use varies from year to year depending on snow depth but would average 9 to 10 months.

The area without management went out of Indian ownership in 1950. Up until that time it was part of the same unit. The stocking rate and season of use is not available since 1950 except that personal observations reveal use is early and continues as long as there is anything to graze.

The percentage vegetative composition by volume to the nearest 5% based on ocular estimate follows.

<u>Species</u>	<u>Area with Mgt.</u>	<u>Area Without Mgt.</u>
Needle-and-thread	45	10
Prairie sandreed	20	5
Blue grama	10	65
Buffalograss	-	5
Western wheatgrass	10	-
Threadleaf sedge	5	10
Little bluestem	5	-
Leadplant amorpha	5	-
Fringed sagewort	-	5
	<u>100%</u>	<u>100%</u>

Using range site and quantitative condition method of estimating range condition based on climax vegetation, the area with management is considered to be in 85% or excellent condition, and the area without management 30%, or just barely fair.

This indicates feasible stocking rates of 2.0 acres per a. u. m. on the area with management and 6.0 acres per a. u. m. on the area without management, three times as much. Granted the area without management may have produced the most beef per acre during the last ten years, it has been at the expense of the vegetation. Livestock numbers must be reduced because there is no longer sufficient forage. There is no reserve for years such as 1959 and such years are not rare in North Dakota.

Fifty-four counties in North and South Dakota received the designation of drouth disaster areas in 1959 for the purpose of emergency loans for feed purchase. This study area is in the heart of that area. Operators with ranges like the "area without management" really did experience a severe drouth during 1959.

This 'localized drouth', and it is that because there is no serious shortage of grazing available on the area with management, has been caused by excessive use of the plants. This heavy use has practically eliminated the mulch with the result that the microclimate is changed materially and a smaller percentage of the precipitation that falls enters the soil.

Plant vigor has been measurably reduced. Comparison of the root systems on needle-and-thread grass in the two areas revealed an average length of the main root mass of 14" in the area with management and only 7" in the area without management.

Operators with ranges like the "area with management" did not experience a drouth in 1959, except in some instances of low stockwater supply. Native

grass was cut for hay in 1959 throughout the range area of the Standing Rock and Cheyenne River Reservations. Grazing management is not just one chapter in maintaining good range condition or improving range condition in the mixed prairie, but it is nearly the whole book.

Abstract of talk given at annual meeting American Society of Range Management, Portland, Oregon, February 5, 1960.

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Comments of a soils man watching a band of sheep grazing on a steep slope:

The soils man said, "I'm browned
This grazing business ain't sound,
What we need at the least
Is the kind of a beast
That can graze with his feet off the ground."

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Even if you are on the right track you will get run over if you just sit there.

THE BUREAU OF LAND MANAGEMENT APPROACH TO "SELLING" THE SCIENCE AND ART OF RANGE MANAGEMENT

By

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The Department of the Interior has a continuing responsibility to keep the public informed of its many programs and activities. The Department welcomes public examination of its programs and activities, not only as an inherent public right under our system of government, but also because public understanding and discussion are essential to effective planning, conduct and accomplishment of Department activities.

The Bureau of Land Management conforms to Department policy and provides factual information about its activities and accomplishments, together with announcements and explanations of final actions and adopted policies. Field personnel are responsible for providing factual and accurate information about Bureau work. Our Director has taken a personal interest in our informing the public with regard to our activities. He has encouraged field personnel to use every appropriate opportunity to tell the factual story of BLM programs and accomplishments to the public.

There is a vast area of public lands under BLM jurisdiction, which are widely scattered throughout the Western States and Alaska. Grazing is only one of many lawful uses. ~~The~~ highest use often involves compatible multiple uses. ~~Basic policies governing~~ the allowable uses of the public lands, and penalties for abuses of them, are expressed by the Congress in our many hundreds of Public Land Laws.

Range management is an impressive and important function in BLM. The Federal range in the 59 grazing districts and the generally scattered tracts of public domain lands outside grazing districts comprise a total area as large as four times the State of Utah. About 12 million head of domestic livestock and well over 1 million big game (excluding Alaska) make some use of these public range lands every year. Here in the Western States, BLM regulates the grazing use of public domain lands made by some 30,000 ranchers,

Abstract of talk given at annual meeting, Am. Soc. of Range Management, Portland, Oregon, February 5, 1960.

who operate the 12 million head of livestock mentioned. The Bureau of Land Management has a big job in selling and science and art of range management.

The stockmen are only one segment of the people who lawfully use public domain lands. From the standpoint of numbers of human users - industrial and personal users - and from the standpoint of public land revenues accruing to public coffers, ranchers and domestic livestock form a minority combination. All of us recognize that the range resource, which the livestock industry converts to useful products, is of national significance in the agricultural economy. The normal product of the range is feeder stock, which can be produced more economically in the range country. Feeders then are shipped to farms and feed lots for finishing for market.

There is little question that ranchers have a right to use public lands for grazing, but there are many questions on how to define the extent of that right. BLM has been preoccupied for many years in its range management function with resource inventory; adjudication among competing base properties, protests, appeals, hearings; licenses, permits, leases, collections; adjustments resulting from real estate transactions; from sometimes drought and sometimes above-average moisture conditions and related functions. Obviously, time and personnel limitations have necessitated priorities. These have varied somewhat. Unfortunately, range studies have not had the same degree of constant attention as given to grazing adjudication and supervision.

However, we have come a long way, and we feel proud of it. At the same time, we realize that we have a tremendous job ahead. We take our hats off to the past and our coats off to the future.

Almost every one of the 30,000 stockmen having public domain land grazing privileges has "suffered" conflicts with one or many neighboring ranchers, because demand for grazing privileges has far exceeded the forage available. Certainly, the considerable number of ranchers who have appealed, and who have gone through the hearings procedures, have experienced critically thought-provoking education in law and in legal procedures, as well as in range management. The ranchers who have paid grazing trespass charges also have learned something about range management - the hard way. Those who have paid fines for setting range fires, or for carelessly allowing fires to escape onto public range lands, have learned something about range management.

There are a number of often conflicting public land uses - mining (lode and placer), mineral leases (petroleum, potash, etc.), rights-of-way (roads, pipelines, powerlines, etc.), and recreation (hunting, fishing, picnicking, etc.). With these, there has been a real field for "selling" range management. BLM is anxious to promote the highest combination of multiple uses of the public land, so long as the uses are compatible.

Often we have to "sell" to two conflicting parties. An example is a recent revision of a Code of Ethics published by the New Mexico Oil and Gas Association. This Code of Ethics was prepared by the Association in collaboration with the Bureau of Land Management and the Geological Survey. The advisory boards of two New Mexico grazing districts, in which oil and gas activity is highly important, offered excellent, constructive recommendations on material to be incorporated in the revised Code. While neither industry is completely satisfied with the Code of Ethics, each realizes that the other is comprised, in the main, of men of good will. Each realizes that the other has a right to use the public land, and that each can do his part to "get along". We confidently expect that the Code of Ethics will continue to help materially in reducing conflicts between the livestock and petroleum industries in New Mexico.

In "selling" range management, BLM has used all of our 59 grazing district advisory boards. District advisors have been tremendously helpful in recommending actions to be taken not only on individual problem cases but also on problems affecting grazing units or entire districts. I'd like to strike a note which has been very encouraging to me. An increasing number of Grazing District Advisors and other ranchers, particularly since World War II, have reduced numbers of stock and have asked us in BLM to increase our programs in brush control and range seeding on public lands in cooperation with them on their intermingled private lands.

The Bureau of Land Management is actively engaged in selling the science and art of range management by providing factual information about its activities and accomplishments, together with explanations of final actions and adopted policies. We invite participation by those affected, and we invite inquiries about our programs.

GRAZING ON UTAH'S NATIONAL FORESTS - MULTIPLE-USE LANDS

By

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It is an honor to be placed on your program. I appreciate the opportunity to discuss with you briefly some of the matters with which we as livestock people and forest officers must face in using national forest land.

You are all aware, I am sure, that the Congress, which recently adjourned for political conventions, enacted the "Multiple-Use Law." It was signed by the President on June 12, 1960. It specifies that "it is the policy of congress that the national forests are established and shall be administered for outdoor recreation, range, timber, watershed, and wildlife and fish purposes." It directs the Secretary of Agriculture "to develop and administer the renewable surface resources of the national forests for multiple use and sustained yield of the several products and services obtained therefrom. In the administration of the national forest, due consideration shall be given to the relative values of the various resources in particular areas."

Forage is an important product of the national forests. Its utilization by domestic livestock and big game has been and is an important economic element in the life of the West, and livestock and wildlife are a very colorful part of our western atmosphere. However, the utilization of the forage crop by domestic livestock and game poses many management problems which are complicated by the rugged topography, the diversified vegetative type, elevational differences, varied exposures, and the heterogeneous nature of the soils which make up our national forests. I think I am safe in saying that no other lands as a class present such difficult range management problems. In addition, the multiple-use aspect of land management must be interjected into this complex. First and foremost, the land must be managed in such a way that it can properly receive and dispose of the vast amount of water which falls upon it because these national forest lands collect and transmit to the valleys much of the lifeblood of our arid West. Secondly, many of these national forest lands are timber producers, and the timber crop must be maintained in a productive condition. Public recreation must be provided for and favorable game and fish habitat retained.

Abstract of paper presented to the Utah Cattlemen's Association by Wm. D. Hurst during Field Day on Fishlake National Forest - July 13, 1960.

Grazing, because of its widespread nature on the national forests and the terrain characteristics involved, exerts a greater influence upon national forest resource management than does any other use. If not properly controlled and managed it can be extremely damaging. If properly conducted it can be harmoniously integrated into the multiple-use management complex. In fact, it can complement many other national forest activities. Too many people think grazing is bad. Actually, proper grazing is good - overgrazing is bad.

What must we as stockmen and public land managers do to integrate domestic livestock grazing into the multiple-use complex of land management?

In the first place, we must recognize the fact that it takes special plants to result in good range condition - and also to provide good watershed conditions. Just any plants will not do. We can never have good cow range if we manage to retain as dominants in the type such undesirable plants as cheatgrass, larkspur, sagebrush, niggerhead, rabbitbrush, and thistle - to name a few. We must raise our sights and manage to make the wheatgrasses, the brome grasses, the fescues, the bluegrasses, and the better shrubs, such as bitterbrush and birchleaf mahogany, the dominant species in the sites to which they are adapted. If we do this, we will also achieve more favorable watershed conditions. For too long we have accepted second choice plants as being adequate for the more productive rangelands. Stocking on the basis of the secondary plants has resulted, in most cases, in worsening of vegetative conditions because the undesirable plants continue to increase and expand their range. To overcome this condition we must recognize the forage and watershed value of the better plants and stock the range light enough to encourage their growth, development and expansion.

Secondly, we must recognize the capabilities of the desirable plants to withstand grazing. Numerous research studies have established the degree of use the major forage species can be subjected to and perpetuate themselves in the plant composition. We learn from research, for example, that few native forage plants, except perhaps those in a wet meadow, can withstand successive years grazing in excess of 50 percent of the current year's growth and survive. Many plant species cannot stand this degree of use. We all realize too, that plants in a weakened condition must have lighter use than their potential in order to regain their health and strength. Plants are living things. Different species have different potentials and capabilities and they respond to sickness and health in much the same way as we do.

Despite the known knowledge on plant utilization, there are far too many areas where this factor is ignored or overlooked. Ranges which are utilized 60, 70, 80, or 90 percent each year, year in and year out, are in

trouble. Not only is the livestock future in trouble, but such use is not compatible with multiple-use management because of the adverse effect it has upon other resources and values.

We must team up and use our ranges in such a way that we are properly utilizing the major forage species.

Thirdly, we must recognize and define the land area on each grazing allotment that is truly suitable for domestic livestock use under a system of management that we can afford to apply. In making this determination, we must recognize the capacity of the soil to produce and to stabilize itself under use. We must recognize the physical limitations on cattle grazing imposed by slope as well as the effect grazing may have on soil displacement on the steeper lands. We must also recognize the land we can permanently graze without excessive damage to canyon bottoms, streambanks, and the more accessible and highly productive grazing areas.

Inadequate attention has been given to this factor of land suitability as far as livestock grazing is concerned. We have attempted to manage the mountain rather than the acre. This has resulted in direct and severe conflict with other resources and has, in many cases, resulted in the denudation of the most productive forage-producing lands on the national forests. To properly integrate livestock use into the multiple-use land management program of the Forest Service, I am convinced that we must define our grazing areas, giving consideration to the soil and plant life characteristics and what we can afford to spend on management. Once this is accomplished, management and development can be applied and results can be expected.

In the fourth place, we must be bold in the application of management to an allotment. The established custom of grazing the same area with the same class of livestock during the same season, year in and year out, is not the most efficient way to utilize a forage crop. If we use the plants beyond their ability to produce and survive under this system, we are in trouble. Systems of rest and rotational use, along with their many variations, must be more liberally applied. This will require research guidance, Forest Service planning, and flexibility enough in the stockman's operation to rotate ranges, defer use and stagger grazing seasons.

It will take the cooperation of all concerned, but I'm sure this can be achieved. In fact, advanced and revolutionary systems of management are in use on a good number of national forest ranges in the State. I want to report too, that research is being conducted on the Uinta and Ashley National Forests on the application of various management systems, and on the Cache National Forest

in methods of securing the most efficient use of mountainous rangeland. The Utah State University is conducting this latter research in cooperation with the Intermountain Forest and Range Experiment Station.

Last, but not least, our joint venture cannot succeed without the existence of a close working relationship between the livestock people and the land manager. The permittees must become familiar with the range study procedures and the standards and criteria on which they are based and must participate as much as possible in the range studies. The district ranger must understand the operation of the livestockmen who use his district and give consideration to the individual livestock operation in the planning program. Both of us must, of course, recognize the multiple-use aspect of land management and the interests of others in these public lands. Most of all, we must all be easy to approach and receptive to a frank discussion of mutual problems. Under such an atmosphere, I feel certain that most of our difficulties can be surmounted to the satisfaction of all concerned, and that domestic livestock grazing can be integrated into the multiple-use land management program as a complementary and highly desirable activity.

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Land is the only permanent thing in the world. All other substances decompose and return to the land, thus enriching the soil, which produces the sustenance of all life. A piece of land on an acre square will be the same size a million years from now, while all else around it will return to dust.

